Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (canceled) A packet optimization method comprising:

generating a metric to indicate a channel condition based on an estimated error rate;

processing the metric to determine optimal packet-size for the channel condition; and

choosing the optimal packet-size corresponding to the processed metric to send to a requestor.

2. (currently amended) ~~The packet optimization~~ A method ~~of claim 1, wherein processing further includes~~ comprising:

generating a metric to indicate a channel condition based on an estimated error rate;

processing the metric to determine optimal packet-size for the channel condition, the processing comprising:

receiving the metric corresponding to the channel condition[;], and

using the received metric to balance a trade-off between the cyclic redundancy check and re-transmission overhead; and

choosing the optimal packet-size corresponding to the processed metric to send to a requestor.

3. (currently amended) The ~~packet optimization~~ method of claim [[1]] 2, wherein choosing the optimal packet ~~further includes~~ comprises training a neural network or look-up table to optimally improve system data throughput by selecting a packet corresponding to the channel condition.

4. (currently amended) The ~~packet optimization~~ method of claim [[1]] 2, wherein the optimal packet-size is a packet-size that minimizes both cyclic redundancy check and re-transmission overhead.

5. (currently amended) The ~~packet optimization~~ method of claim [[1]] 2, wherein the estimated error rate is a weighted combination of a frame error rate (FER), a signal to noise ratio (SNR) estimate, an energy per bit (Eb)/ thermal noise (Nt) estimate, and a system time or finger time drift rate.

6. (currently amended) The ~~packet optimization~~ method of claim [[1]] 2, wherein the estimated error rate is selected from a group consisting of frame error rate (FER), signal to noise ratio estimate (SNR), energy per bit (Eb) / Thermal noise (Nt) estimate, and system time or finger time drift rate.

7. (canceled) An apparatus comprising:

a memory to store a metric and packet; and

a processor to generate a metric indicating a channel condition based on an estimated error rate, to process the metric to determine optimal packet-size for the channel condition, and to choose the optimal packet-size corresponding to the processed metric to send to a requestor.

8. (currently amended) ~~The~~ An apparatus ~~of claim 7,~~ comprising:

a memory to store a metric and packet; and

a processor to generate a metric indicating a channel condition based on an estimated error rate, to process the metric to determine optimal packet-size for the channel condition, and to choose the optimal packet-size corresponding to the processed metric to send to a requestor;

wherein the processor receives the metric corresponding to the channel condition, and ~~use~~ uses the received metric to balance trade-off between the cyclic redundancy check and re-transmission overhead.

9. (currently amended) The apparatus of claim [[7]] 8, wherein the processor trains a neural network or look-up table to optimally improve system data throughput by selecting a packet corresponding to the channel condition.

10. (currently amended) The apparatus of claim [[7]] 8, wherein the processor chooses an optimal packet-size that minimizes both cyclic redundancy check and re-transmission overhead.

11. (currently amended) The apparatus of claim [[7]] 8, wherein the processor computes the estimated error rate as a weighted combination of a frame error rate (FEF), a signal to noise ratio (SNR) estimate, an energy per bit (Eb)/ thermal noise (Nt) estimate, and a system time or finger time drift rate.

12. (currently amended) The apparatus of claim [[7]] 8, wherein the estimated error rate is one of a frame error rate (FER), a signal to noise ratio estimate (SNR), an energy per bit (Eb) / Thermal noise (Nt) estimate, and a system time or finger time drift rate.

13. (canceled) A storage medium having stored therein a plurality of machine executable instructions, wherein when executed, the instructions performing operations comprising:

generating a metric to indicate a channel condition based on an estimated error rate;

processing the metric to determine optimal packet-size for the channel condition; and

choosing the optimal packet-size corresponding to the processed metric to send to a requestor.

14. (currently amended) ~~The~~ A storage medium ~~of claim 13,~~ having stored therein a plurality of machine executable instructions, wherein when executed, the instructions performing operations comprising:

generating a metric to indicate a channel condition based on an estimated error rate;

processing the metric to determine optimal packet-size for the channel condition; and

choosing the optimal packet-size corresponding to the processed metric to send to a requestor;

wherein the instructions performing processing the metric comprises instructions, when executed, performing operations comprising:

receiving the metric corresponding to the channel condition[;], and

using the received metric to balance trade-off between the cyclic redundancy check and re-transmission overhead.

15. (currently amended) The storage medium of claim ~~13~~ 14, wherein the instructions performing choosing the optimal packet comprises instructions, when executed, performing operations comprising training a neural network or look-up table to optimally improve system data throughput by selecting a packet corresponding to the channel condition.

16. (canceled) A method of preventing system overload in a base station or mobile data transmission system comprising:

estimating likelihood of packet transmission error in a system;

determining a radio link protocol (RLP) packet-size corresponding to the estimated likelihood of packet transmission error; and

sending a RLP packet having size corresponding to the RLP packet-size to a base station or mobile data transmission system.

17. (canceled) The method of claim 16, wherein determining the RLP packet-size further includes:

allowing a base station or mobile data transmission system to request a change for the RLP packet-size; and

selecting the RLP packet from a predetermined table that corresponds in size to the size requested by the base station or mobile data transmission system.

18. (currently amended) ~~The~~ A method ~~of claim 17,~~ comprising:

estimating likelihood of packet transmission error in a system;

determining a radio link protocol (RLP) packet-size corresponding to the estimated likelihood of packet transmission error, the determining the RLP packet-size comprising:

allowing a base station or mobile data transmission system to request a change for the RLP packet-size, and

selecting the RLP packet from a predetermined table that corresponds in size to the size requested by the base station or mobile data transmission system; and

sending a RLP packet having size corresponding to the RLP packet-size to a base station or a mobile data transmission system;

wherein the base station or mobile data transmission request is limited to a predetermined number of requests.

19. (canceled) An apparatus comprising:

a memory to store RLP packets; and

a processor to estimate likelihood of packet transmission error in a system, to determine a radio link protocol (RLP) packet-size corresponding to the estimated likelihood of packet transmission error, and to send a RLP packet having size corresponding to the RLP packet-size to a base station or mobile data transmission system.

20. (canceled) The apparatus of claim 19, wherein the processor allows a base station or mobile data transmission system to request a change for the RLP packet-size, and selects the RLP packet from a predetermined table that corresponds in size to the size requested by the base station or mobile data transmission system.

21. (currently amended) ~~The~~ An apparatus ~~of claim 20,~~ comprising:

a memory to store RLP packets; and

a processor to estimate likelihood of packet transmission error in a system, to determine a radio link protocol (RLP) packet-size corresponding to the estimated likelihood of packet transmission error, and to send a RLP packet having size corresponding to the RLP packet-size to a base station or mobile data transmission system;

wherein the processor allows the base station or mobile data transmission system to request a change for the RLP packet-size, selects the RLP packet from a predetermined table that corresponds in size to the size requested by the base station or mobile data transmission system, and limits the request from the base station or mobile data transmission to a predetermined number of requests.

22. (canceled) A storage medium having stored therein a plurality of machine executable instructions, wherein when executed, the instructions performing operations comprising:

estimating likelihood of packet transmission error in a system;

determining a radio link protocol (RLP) packet-size corresponding to the estimated likelihood of packet transmission error; and

sending a RLP packet having size corresponding to the RLP packet-size to a base station or mobile data transmission system.

23. (canceled) The storage medium of claim 22, wherein the instructions performing determining the RLP packet-size comprises instructions, when executed, performing operations comprising:

allowing a base station or mobile data transmission system to request a change for the RLP packet-size; and

selecting the RLP packet from a predetermined table that corresponds in size to the size requested by the base station or mobile data transmission system.

24. (currently amended) The A storage medium ~~of claim 23,~~ having stored therein a plurality of machine executable instructions, wherein when executed, the instructions performing operations comprising:

estimating likelihood of packet transmission error in a system;

determining a radio link protocol (RLP) packet-size corresponding to the estimated likelihood of packet transmission error; and

sending a RLP packet having size corresponding to the RLP packet-size to a base station or a mobile data transmission system;

wherein the instructions performing determining the RLP packet-size comprises instructions, when executed, performing operations comprising:

allowing the base station or mobile data transmission system to request a change for the RLP packet-size, and

selecting the RLP packet from a predetermined table that corresponds in size to the size requested by the base station or mobile data transmission system; and

the base station or mobile data transmission system is limited to a predetermined number of requests.

25. (canceled) A method of optimizing packet-size comprising:

storing at least one radio link protocol (RLP) packet in a physical layer; and

predetermining the RLP packet-size by empirical experimentation.

26. (currently amended) ~~The~~ A method ~~of claim 25,~~ comprising:

storing at least one radio link protocol (RLP) packet in a physical layer; and

pre-determining a RLP packet-size by empirical experimentation; the ~~wherein~~ pre-determining the RLP packet-size comprising ~~comprises~~:

simulating a condition with a particular metric value[;],

adjusting packet-size manually corresponding to the metric value[;], and

recording packet-size data for the metric value to obtain maximum system throughput.

27. (currently amended) The method of claim ~~25~~ 26, wherein the predetermining comprises storing a metric value in a lookup table and obtaining an optimum packet-size corresponding to the stored metric value.

28. (currently amended) The method of claim ~~25~~ 26, wherein the RLP packet includes cyclic redundancy check bits to provide error-checking capability for the RLP packet.

29. (canceled) An apparatus comprising:

a memory to store an radio link protocol (RLP) packet, and data from an empirical experimentation; and

a processor to store at least one RLP packet in a physical layer, and to predetermine the RLP packet-size by the empirical experimentation.

30. (currently amended) ~~The~~ An apparatus ~~of claim 29,~~ comprising:

a memory to store an radio link protocol (RLP) packet, and data from an empirical experimentation; and

a processor to store at least one RLP packet in a physical layer, and to predetermine the RLP packet-size by the empirical experimentation;

wherein the processor ~~to perform~~ performs the empirical experimentation, simulates a condition with a particular metric value, adjusts packet-size manually corresponding to the metric value, and records packet-size data for the metric value for obtaining maximum system throughput.

31. (currently amended) The apparatus of claim ~~29~~ 30, wherein the processor stores a metric value in a lookup table and obtains an optimum packet-size corresponding to the stored metric value.

32. (currently amended) The apparatus of claim ~~29~~ 30, wherein the RLP packet includes cyclic redundancy check bits to provide error-checking capability for the RLP packet.

33. (canceled) A storage medium having stored therein a plurality of machine executable instructions, wherein when executed, the instructions perform operations comprising:

storing at least one radio link protocol (RLP) packet in a physical layer; and

predetermining the RLP packet-size by an empirical experimentation.

34. (currently amended) ~~The~~ A storage medium ~~of claim 33,~~ having stored therein a plurality of machine executable instructions, wherein when executed, the instructions perform operations comprising:

storing at least one radio link protocol (RLP) packet in a physical layer; and

predetermining the RLP packet-size by an empirical experimentation;

wherein the instructions performing predetermining the RLP packet-size comprises instructions, when executed, performing operations comprising:

simulating a condition with a particular metric value[;],

adjusting packet-size manually corresponding to the metric value[;], and

recording packet-size data for the metric value to get maximum system throughput.

35. (currently amended) The storage medium of claim ~~33~~ 34, wherein the instructions performing predetermining the RLP packet-size comprises instructions, when executed, performing operations comprising storing a metric value in a lookup table and obtaining an optimum packet-size corresponding to the stored metric value.

36. (currently amended) The storage medium of claim ~~33~~ 34, wherein the RLP packet includes cyclic redundancy check bits to provide error-checking capability for the RLP packet.

37. (new) A method comprising:

generating a metric to indicate a channel condition based on an estimated error rate;

processing the metric to determine optimal packet-size for the channel condition; and

choosing the optimal packet-size corresponding to the processed metric to send to a requestor;

wherein the optimal packet-size is a packet-size that minimizes both cyclic redundancy check and re-transmission overhead.

38. (new) The method of claim 37 wherein the estimated error rate is a combination of at least a frame error rate (FER), a signal to noise ratio estimate (SNR), an energy per bit (Eb) / Thermal noise (Nt) estimate, and a system time or finger time drift rate.

39. (new) A method comprising:

generating a metric to indicate a channel condition based on an estimated error rate;

processing the metric to determine optimal packet-size for the channel condition; and

choosing the optimal packet-size corresponding to the processed metric to send to a requestor;

wherein the estimated error rate is a weighted combination of a frame error rate (FER), a signal to noise ratio (SNR) estimate, an energy per bit (Eb)/ thermal noise (Nt) estimate, and a system time or finger time drift rate.

40. (new) The method of claim 39 wherein the optimal packet-size is a packet-size that minimizes both cyclic redundancy check and re-transmission overhead.

41. (new) An apparatus comprising:

a memory to store a metric and packet; and

a processor to generate a metric indicating a channel condition based on an estimated error rate, to process the metric to determine optimal packet-size for the channel condition, and to choose the optimal packet-size corresponding to the processed metric to send to a requestor;

wherein the processor chooses an optimal packet-size that minimizes both cyclic redundancy check and re-transmission overhead.

42. (new) The apparatus of claim 41 wherein the processor computes the estimated error rate as a combination of at least a frame error rate (FER), a signal to noise ratio estimate (SNR), an energy per bit (Eb) / Thermal noise (Nt) estimate, and a system time or finger time drift rate.

43. (new) An apparatus comprising:

a memory to store a metric and packet; and

a processor to generate a metric indicating a channel condition based on an estimated error rate, to process the metric to determine optimal packet-size for the channel condition, and to choose the optimal packet-size corresponding to the processed metric to send to a requestor;

wherein the processor computes the estimated error rate as a weighted combination of a frame error rate (FEF), a signal to noise ratio (SNR) estimate, an energy per bit (Eb)/ thermal noise (Nt) estimate, and a system time or finger time drift rate.

44. (new) The apparatus of claim 43 wherein the processor chooses an optimal packet-size that minimizes both cyclic redundancy check and re-transmission overhead.